POLIMASTER

SOFTWARE GUIDE

SOFTWARE FOR

GAMMA-NEUTRON PERSONAL RADIATION DETECTOR

PM1703GNM

Equipment	**Gamma-neutron personal radiation detector**
Software	**PM1703 GNM Software**
Manufacturer	**Polimaster**

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Validity

The software guide has passed validity and correctness check.
It contains instructions and descriptions that are considered to be true for **PM1703 GNM Software** as of the time of this Software Guide publication.
Documented Software and its settings are subject to change with no substantial effect on its functionality. Polimaster reserves the right to change Software in such a way not mentioning it in Software Guides.

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INTRODUCTION

NOTE ABOUT THE GUIDE

Polimaster PRD (Personal Radiation Detectors) Data Collection and Handling Software is designed to work with Polimaster Personal Radiation Detectors (PRD) and is also intended for changing of the internal settings of the instrument by authorized persons.
The Software Guide familiarizes users with technical specifications and functions of the **PM1703GNM** software.

Software Guide provides full and detailed information on software interface structure, describes all the program functions and software-hardware communication.

GETTING STARTED

Carefully study this Software Guide before starting work with the **PM1703GNM** pre-installed software and **PM1703GNM** instrument. It is recommended to avoid wrong actions and to enhance software operational reliability.

Upon reading retain this Software Guide for future references.

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SOFTWARE OVERVIEW

PM1703GNM software (further – software) developed by the Polimaster company, enables operational control over radiation situation and output on the PC display of the data read in the real time mode by detector of the connected instrument.

Software is installed onto the user PC (further – PC) and in intended for operation only with the **PM1703GNM** instruments manufactured by Polimaster company.

The instrument is connected to a PC by means of an USB cable (mini USB-USB cable type). The instrument and PC communicate by means of USB interface.

User must have at least initial experience in working with PCs under Windows family system to operate **PM1703GNM** Software.

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SOFTWARE APPLICATION FIELD

The software is an integral part of the instrument, which is designed for the wide range of specialists to detect and locate radioactive and nuclear materials on their gamma or neutron radiation.

Software **PM1703GNM** enables:

- Acquisition and storage of all measurement data from a PRD instrument;
- Visualization (displaying) of these data;
- Adjusting of the PRD instrument internal settings, such as various measurement coefficients, thresholds, enabling\disabling the vibration and sound alerts, etc.;
- Control over the DE thresholds exceeding;
- Working with the instrument history database.

Graphically simple, convenient and intuitive user interface of the PM1703GNM software is designed for the wide range of specialists as well as for the customers without expertise and pretraining for:

- Providing personal safety while working with ionizing radiation sources when carrying out researches;
- Providing personal safety of personnel by means of constant dose and dose rate control, and instant alarm if there is personal radiation hazard;
- Early warning of possible radiation contamination or terrorist attack.

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SOFTWARE IS INTENDED FOR:

- Instrument-PC USB interfacing;
- Reading out events information (further – instrument history) from the instrument's non-volatile memory;
- Conducting on-line real time measurement and displaying the results in digital and graphical mode;
- Control and alarm on the DE thresholds exceeding;
- Measuring of the neutron radiation count rate;
- Measuring of the gamma radiation count rate;
- Read/record operation settings of the connected instrument:
    - DE thresholds values;
    - History saving/recording interval;
    - Measurement units;
    - Reset of the accumulated DE;
    - Enable/disable the search/measurement mode;
    - Enable/disable different alarm types.
- Save measurement history on PC (history export);

SYSTEM REQUIREMENTS

Hardware and software requirements for proper **PM1703GNM** software operation:

- Any of the following operating system:
    - Microsoft Windows Vista;
    - Microsoft Windows XP;
    - Microsoft Windows 7.

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RECOMMENDED INTIAL PROCEDURES

1 **Install the PM1703GNM software on the PC**

2 **Install the service program**

3[1] **Install the necessary drivers in the manual mode**

4 **Turn the Instrument on**

5 **Connect the PM1703GNM to the PC by the USB cable (mini USB-USB cable type)**

6 **Run the software**
The program can be run either before or after connection of the Instrument to the PC

7 **Setup the connection of the instrument to the PC**

8 **Software is ready for use**

[1] Skip to step 3, if the drivers are installed automatically

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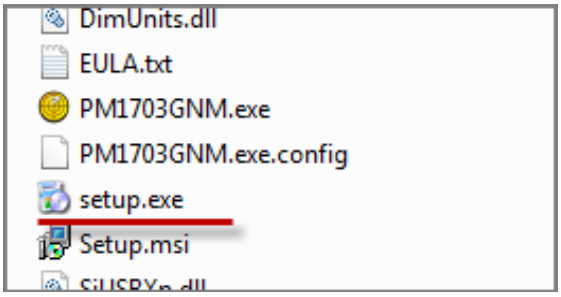
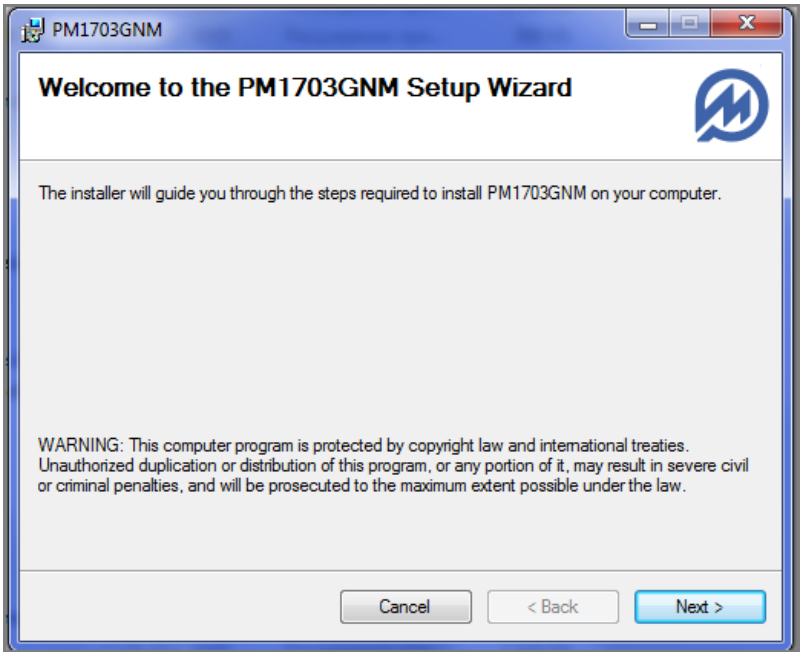
SOFTWARE INSTALLATION

To install the software it is necessary to carry out following procedure.

1. Insert the CD with the software installation package (included in the delivery set) in the CD drive of your computer. Then using any file manager open the CD and run the file setup.exe, located in the root directory.



2. After the file is running the Setup Wizard window will open.


PM1703GNM
Welcome to the PM1703GNM Setup Wizard
The installer will guide you through the steps required to install PM1703GNM on your computer.
WARNING: This computer program is protected by copyright law and international treaties. Unauthorized duplication or distribution of this program, or any portion of it, may result in severe civil or criminal penalties, and will be prosecuted to the maximum extent possible under the law.
Cancel
< Back
Next >

3. Click the **Next** button to run the setup of the PM1703GNM Software.

In the new window Setup wizard will ask you to select a different folder to install the software, or agree with the proposed folder. The default folder is **Program Files\Polimaster\PM1703GNM.**

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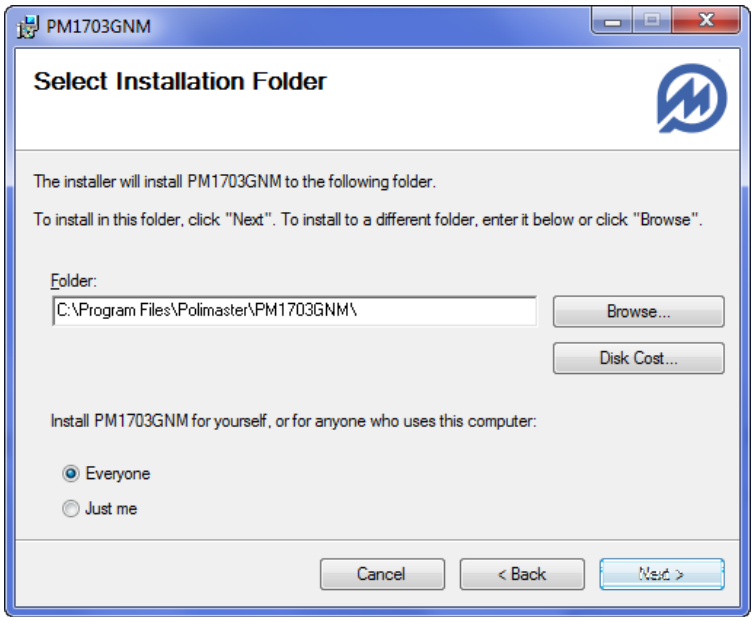
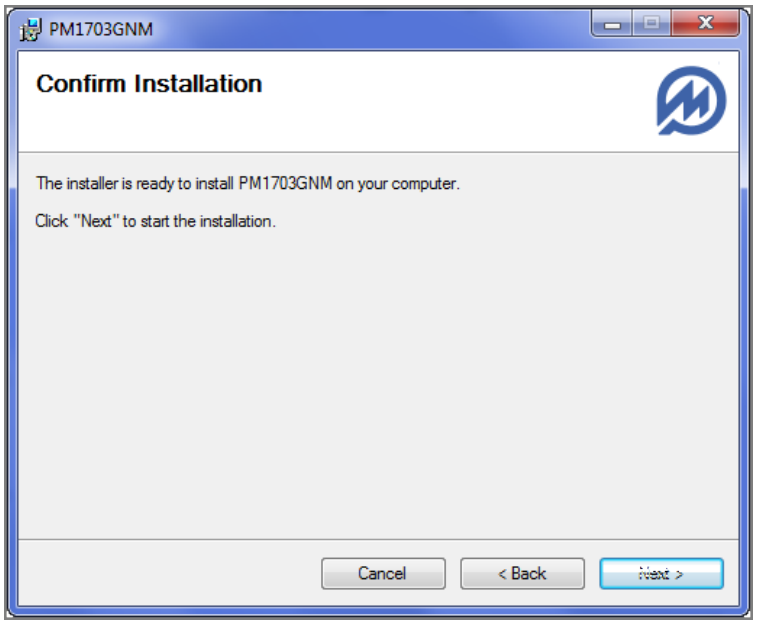

PM1703GNM
Select Installation Folder
The installer will install PM1703GNM to the following folder.
To install in this folder, click "Next". To install to a different folder, enter it below or click "Browse".
Folder:
C:\Program Files\Polimaster\PM1703GNM\
Browse...
Disk Cost...
Install PM1703GNM for yourself, or for anyone who uses this computer:
Everyone
Just me
Cancel
< Back
Next >

4. Click the Next button to continue installing the of the PM1703GNM Software.


PM1703GNM
Confirm Installation
The installer is ready to install PM1703GNM on your computer.
Click "Next" to start the installation.
Cancel
< Back
Next >

In the new window choose the Next button to confirm the Installation.
It will start the installation process of the PM1703GNM software.

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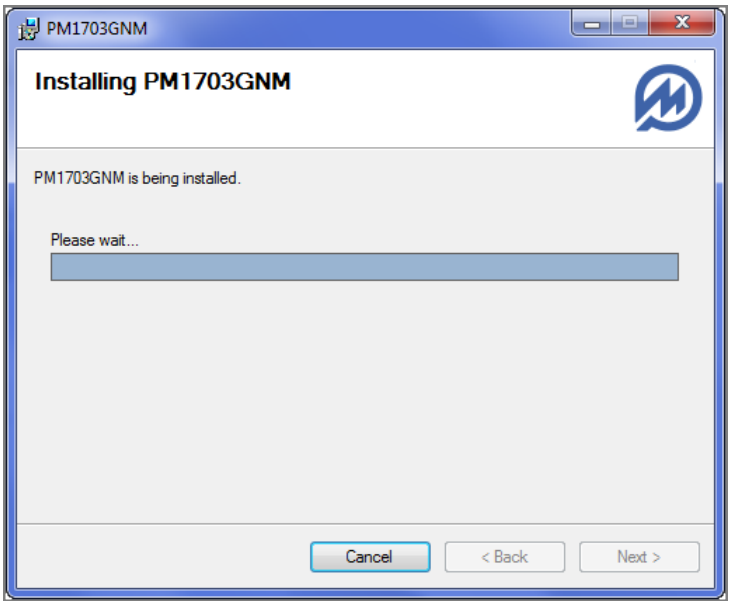
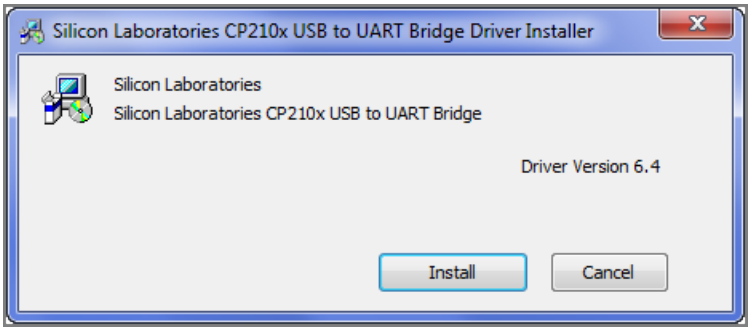


5. After finishing the installation the system will begin searching for the pre-installed drivers required for the program and instrument operation. In case the auto installation failed, on the taskbar will appear the following minimized window "Silicon Laboratories…".

6. In that case the user should install the drivers in the manual mode. Maximize the window "Silicon Laboratories ..." and run the driver installation by clicking the Install button. After successful driver installation will appear the following message “Installation completed successfully”.



Click the **Close** button to finish installation of the PM1703GNM software.

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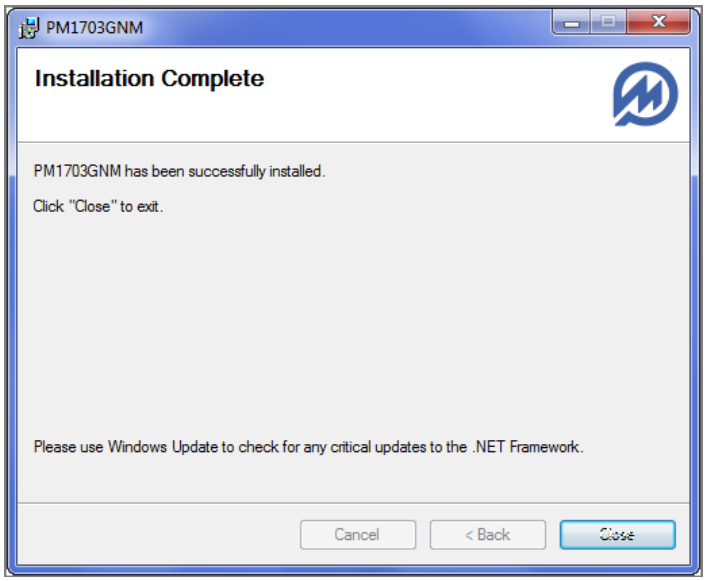
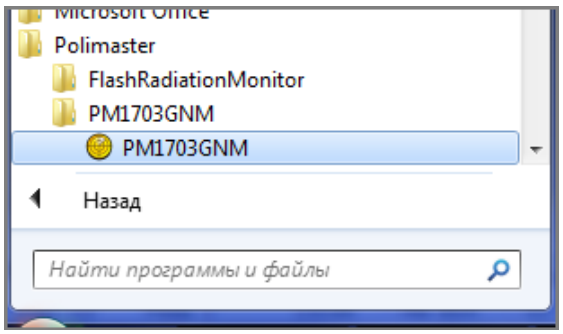


If you need to restart the PC, the screen displays a dialog box informing that to save the configuration changes you have to restart the PC. The user can restart the computer immediately (click the Yes button) or later (click the No button).

7. The PM1703GNM software is successfully installed.

After the installation of the software it will appear on the Start > All Programs > Polimaster> PM1703GNM > PM1703GNM:



The installation program will create a shortcut on the desktop for the quick start of the program. You can also click **Start** button, find the program's icon, right-click the icon, and then click "Pin to Taskbar" or "Add to the Start Menu".

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START THE PROGRAM/EXIT THE PROGRAM

Carefully study this Software Guide before starting work with the PM1703GNM software. It is recommended to avoid wrong actions and to enhance software operational reliability.
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Further are described the procedures of connecting the instrument to the PC, connecting the instrument to the software, start the software, exit the program and disconnecting of the instrument.

1. Turn the instrument on;
2. Connect the **PM1703GNM** instrument to a PC by the USB cable;
3. Click the program icon in the start menu to launch the program. You can also use the icons on the desktop or in the taskbar.

4. The dialog box “Find Instrument” will appear. Choose Find to start the program and to establish connection with the instrument.

PM 1703 GNM - Find Instrument
Find Instrument
Please, switch the Instrument on and connect it to the computer. Then press Find button.
Close
Find

5. As a result main program window of **PM1703GNM** will appear.

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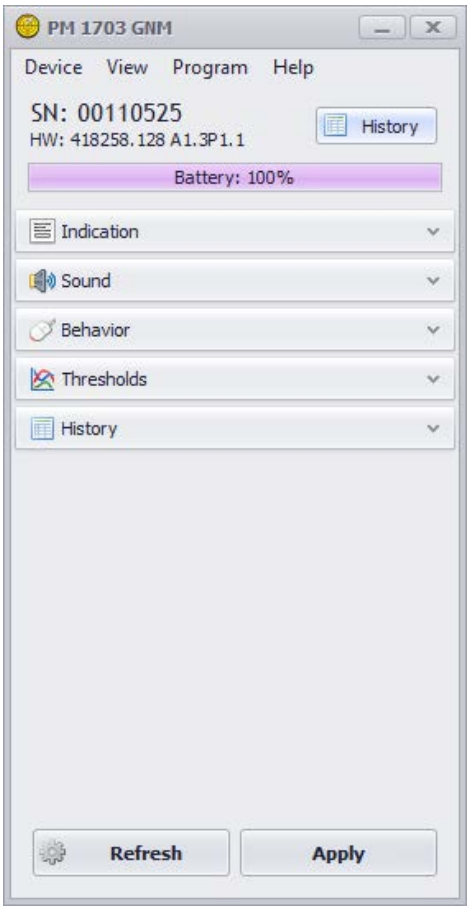
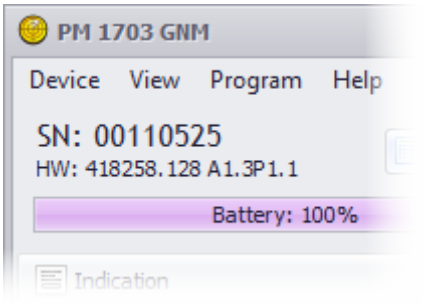


6. The program will establish connection with the instrument and display the serial number and software version of the found instrument in the main program window:



7. For proper program exit select one of the following ways: Select **Device** menu of the main program window and click **Exit** command or use the **Close** button .

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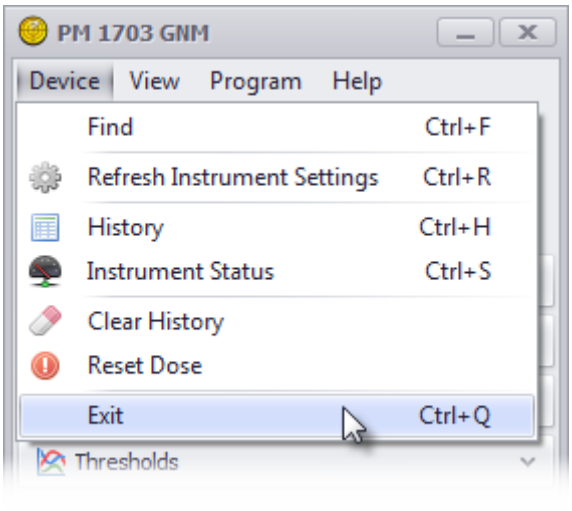

8. Disconnect the USB cable from the PC.

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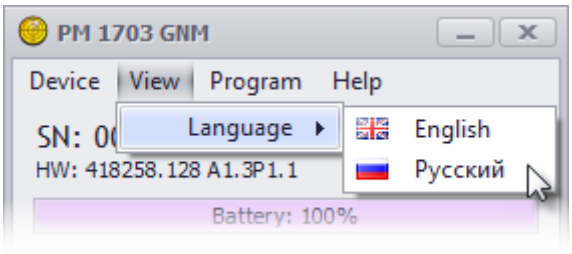
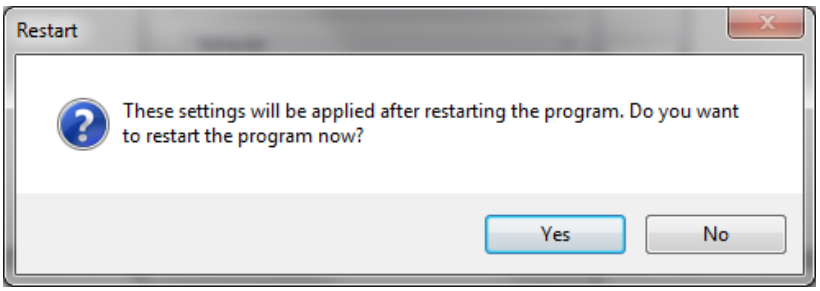
Interface language

Current software version supports Russian and English languages. Default software interface language is English.



To change the interface language, select the language from the **View** menu, **Language** item.

Restart software to enable new interface language.



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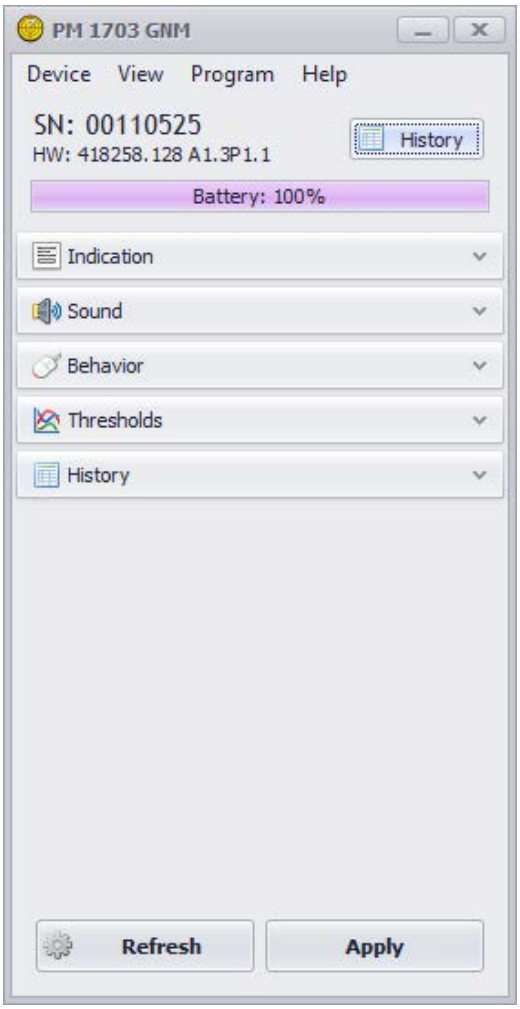
MAIN PROGRAM WINDOW

Simple graphic interface of the main program window represents a set of commands and tools for PC user to interact with the connected instrument and work with measurement results.



MAIN PROGRAM WINDOW STRUCTURE:

- **Menu** of the main program window (**Device, View, Program, Help**);
- Field displaying the instrument **serial number**;
- **History** button on the right of the serial number;
- **Battery charge** indication bar;
- Main program window **Tool Bar**. The toolbar is located under the battery charge indication bar. Toolbar buttons correspond to the five parameters of the instrument settings: Indication, Sound, Behavior, Thresholds, History;

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- **Refresh** and **Apply** buttons are located under the Tool bar.

Detailed description of all the commands and functions of the main program window and toolbar is given further in the Guide.

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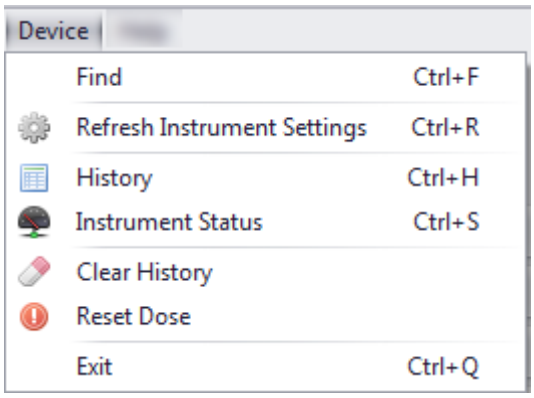
MAIN PROGRAM WINDOW MENU

Menu Device commands and items:

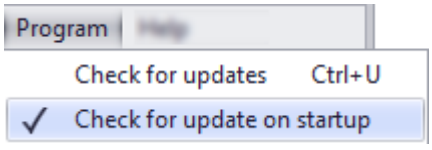


- **Find** command allows to establish the connection to the instrument;
- **Refresh instrument settings** command allows to view, update and change instrument settings;
- **History** item allows viewing the instrument history;
- **Instrument Status** item allows displaying the real time operation of the instrument;
- **Clear History** command allows clearing the instrument history;
- **Reset Dose** command allows resetting the accumulated dose value;
- **Exit** command allows closing and quitting the program.

Menu View commands and items:

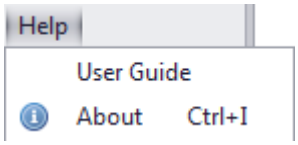
- Interface language changing.

Menu Program commands and items:



- **Check for updates** – check for updates manually;
- **Check for update on startup** – check for updates automatically.

Menu Help commands and items:



- Software User Manual;
- Information on Software version and the EULA.

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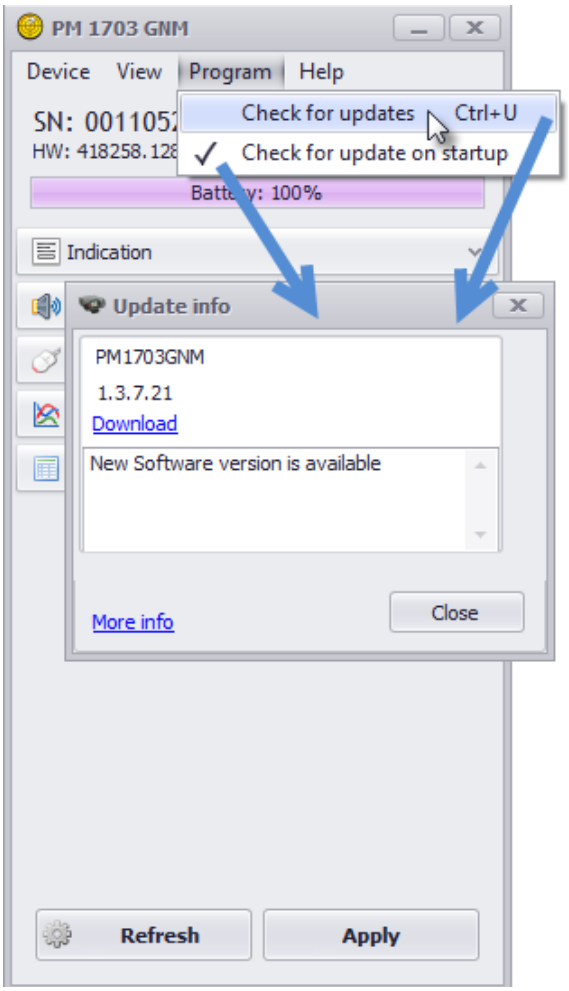
Software updates checking

Software has the function of checking the availability of information about the new product releases. If there is a software update available, the user can download it from the company's website.
If the updates are available, notification window displays the changes related to the instrument or software, as well as the links for getting more information and downloading the updated software.



If the checkbox **Check for update on startup** is selected, the notification window appears automatically each time you start the software.
There is the possibility to check the availability of the updates manually by clicking the **Check for updates** item of the **Program** menu.
If there are no updates the following message will appear:

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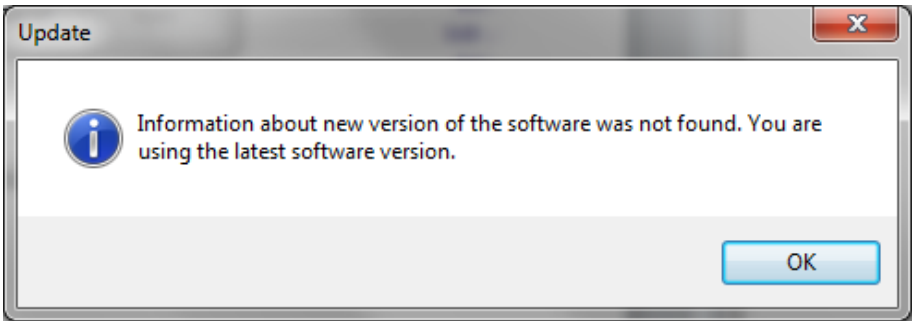

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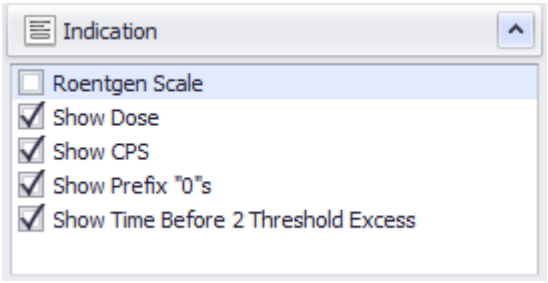
TOOL BAR

By selecting options from the toolbar you can change various settings of the program and of the instrument. To save the changes made to the instrument settings you need to click the **Apply** button at the bottom right of the main window. To save the changes made to the software, you need to click the **Refresh** button in the bottom left of the main window.

Some of the toolbar buttons can duplicate basic commands of the main program window.

1. Indication tab

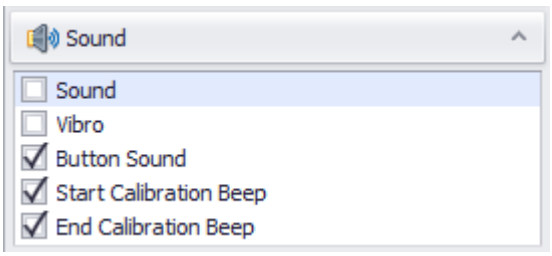
The **Indication** tab of the toolbar contains following items:



- **Roentgen Scale** – measuring unit change – selection of the display units of DER and DE measurement (Sv/h or R/h, Sv or R). Filled checkbox means Roentgen Scale measuring.
- **Show dose** – switches on/off the accumulated dose indication;
- **Show CPS** – switches on/off the neutron registration mode (counts per second);
- **Show prefix "0"** – show zeros before the numerical readings;
- **Show time before 2 Threshold excess** – show time left till the exceeding of the second DE threshold;

2. Sound tab

The **Sound** tab of the toolbar contains following items:



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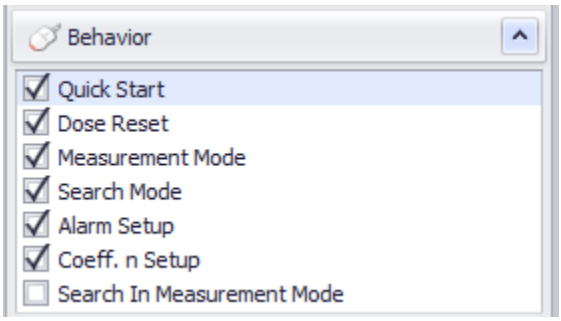
- **Sound** - switches on/off the instrument sounds;
- **Vibro** - switches on/off the instrument vibration alarm;
- **Button Sound** - switches on/off the audible indication of the instrument buttons pressing;
- **Start Calibration Beep** - switches on/off the audible indication of the calibration start;
- **End Calibration Beep** - switches on/off the audible indication of the calibration termination.

3. Behavior tab

Items of the **Behavior** tab enable/disable the possibility to carry out various operations, as well as to enter certain modes of the instrument.
The **Behavior** tab of the toolbar contains following items:



- **Quick Start** – choosing the switching off mode – with or without confirmation;
- **Dose Reset** – allows/forbids resetting of the accumulated dose value;
- **Measurement Mode** – allows/forbids entering the measurement mode;
- **Search Mode** – allows/forbids entering the search mode;
- **Alarm Setup** – allows/forbids the user to switch on or off the audio and vibration alarms using the instrument buttons;
- **Coeff. n Setup** – allows/forbids the user to change the value of coefficients for gamma and neutron radiation using the instrument buttons;
- **Search In Measurement Mode** – allows/forbids the search mode during the measurement mode.

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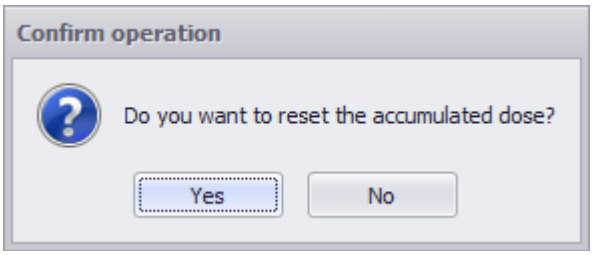
Dose reset

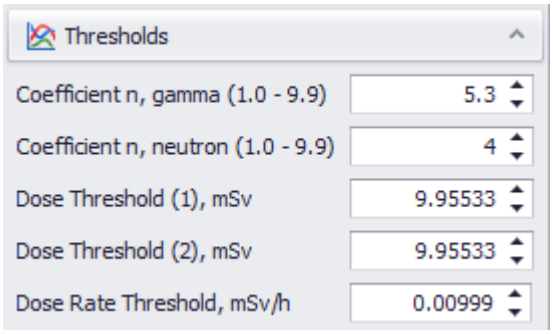
To reset the accumulated dose choose the **Reset Dose** item of the Device menu, and then confirm the action by clicking “Yes” in the dialog box.



If the **Dose Reset** checkbox from the Behavior tab of the toolbar is flagged, the Dose reset with the Instrument buttons is allowed.

4. Thresholds tab

The Thresholds tab of the toolbar contains following items:



- **Coefficient n, gamma** – the number of measured deviations (coefficient n) for gamma radiation;
- **Coefficient n, neutron** - the number of measured deviations (coefficient n) for neutron radiation;
- **Dose Threshold** (1), mSv – first DE threshold value;
- **Dose Threshold** (2), mSv – second DE threshold value;
- **Dose Rate Threshold**, mSv/h – DER threshold value.

Threshold setting

The software gives the possibility to set the value of the two Safety Alarm thresholds for DE measurement and one threshold for DER measurement.
By threshold exceeding the instrument gives visual and audible alarm.

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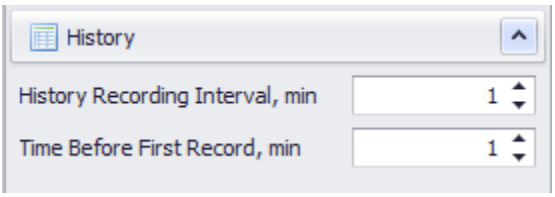
The thresholds can be set with the help of the “Thresholds” tab of the toolbar. Using the adjustment buttons or the keyboard enter the needed value of the threshold, press the Apply button in the main program window to save the settings change, and then confirm the action by clicking “Yes” in the dialog box.

The DE 2 value must exceed the DE 1 value.

5. History tab

The History tab of the toolbar contains following items:



- **History Recording Interval**, min - value of time intervals in which the current count rate values are recorded in the instrument memory;
- **Time Before First Record**, min - the time interval, after which the first current count rate value is recorded in the instrument memory.

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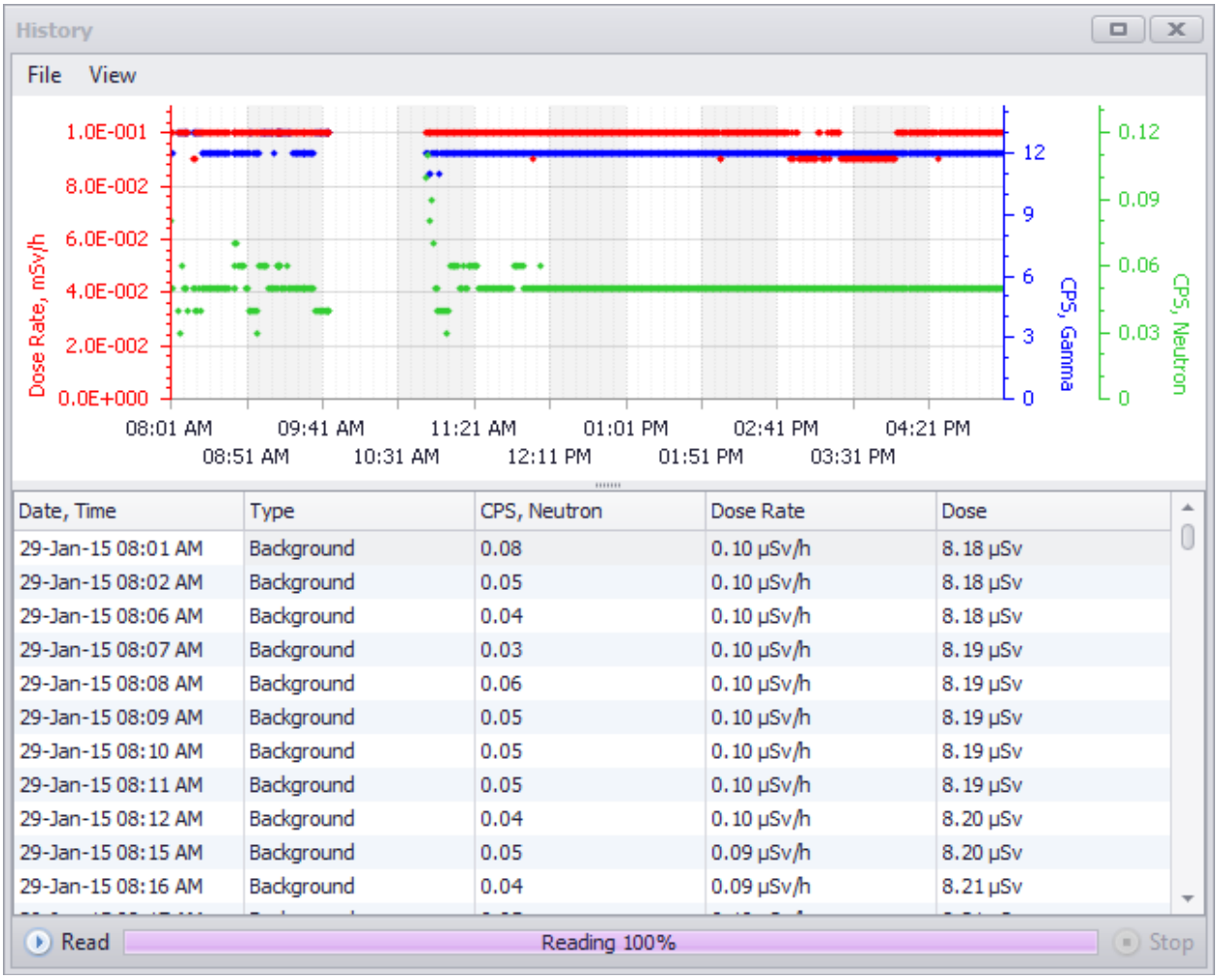
HISTORY MODE

When working offline (not connected to the PC) all events of the instrument history are written in its non-volatile memory. When connected to PC all the history events are read and displayed in the History mode. The program will continue displaying all events in the real time during the period when the instrument is connected to the PC.

The PM1703GNM software enables following operations with the history:

- View measurement history data;
- Save history onto user PC or removable flash-drive;
- Print out history.

To enter History mode you have to click History button (History) in the main program window, select the necessary tab from the Device menu, or use the key combination Ctrl+H. Following window will appear:



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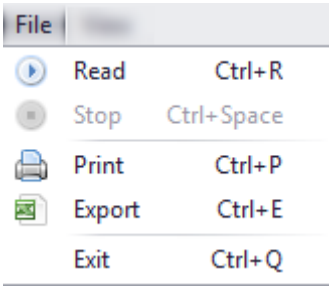
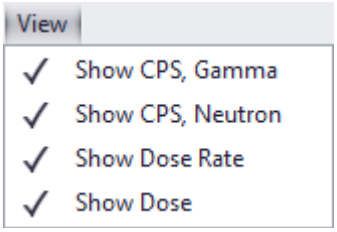
At the top of the window there is the area for graphical displaying of the measurement. Below there are measurement data represented in tabular style. The first column shows the date and time of measurement in chronological order, the second - the type of event, the third - neutron count rate (CPS), the fourth - the dose rate, the fifth - the accumulated dose, the sixth - gamma count rate (CPS).

The history events will not be written by the instrument with the low battery!

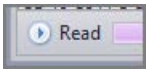
History menu

History window menu contains two tabs - **File and View**.
Some of the toolbar buttons duplicate basic commands of the main program window.





Menu “File”

- Item “**Read**” of the Data menu (or the key combination Ctrl+R) duplicates the 

button in the bottom left corner of the History window and allows reading history from the instrument’s memory;
- Item “**Stop**” of the Data menu allows stopping the history reading;
- Item “**Print**” of the Data menu (or the key combination Ctrl+P) allows printing the history after opening the preview window;
- Item “**Export**” of the Data menu (or the key combination Ctrl+E) opens the dialogue box “Safe as” and allows the history saving as a file with the ***.xls filename extension. It is necessary to name the file and to save it in the specified folder, after that it can be opened using any program for the spreadsheets viewing.
- Item “**Exit**” (or the key combination Ctrl+Q) allows closing the history window and quit history mode.

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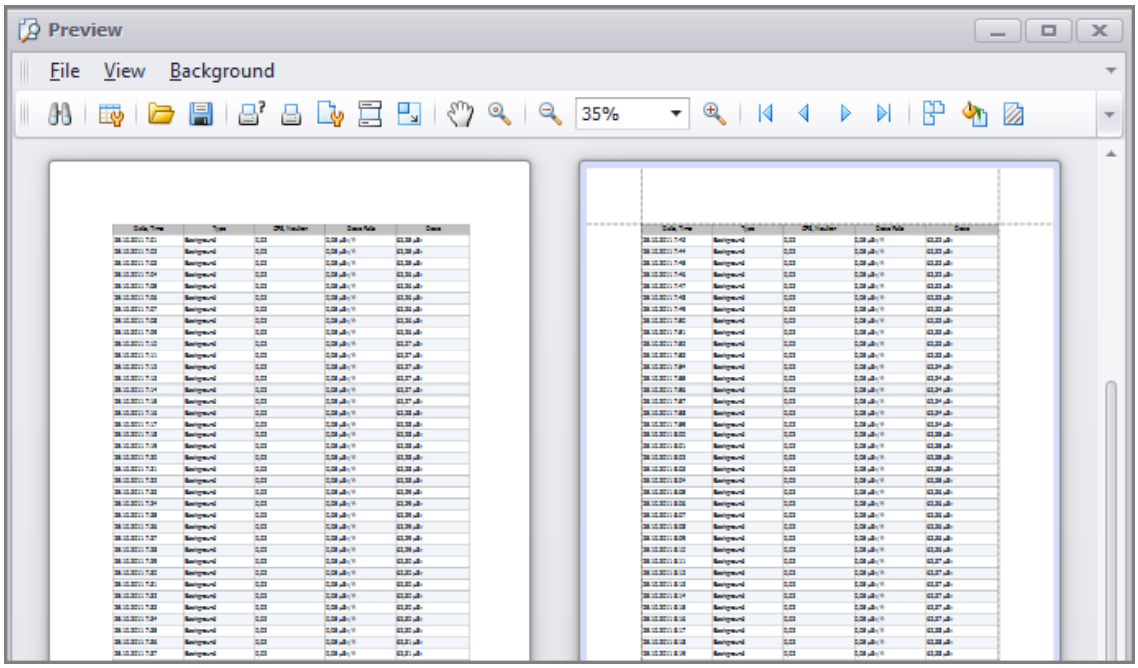


Menu “View”

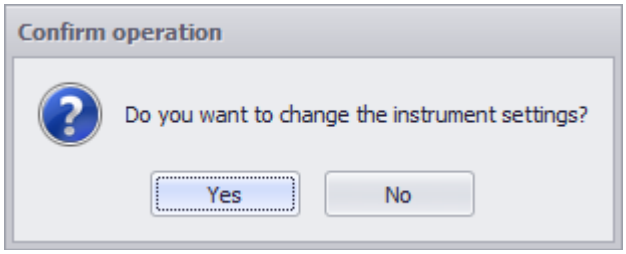
View menu gives the possibility to select and to readout the necessary measurement data in tabular form.

HISTORY RECORDS SETTING

In the **History** tab of the toolbar (item History Recording Interval, min), using the adjustment buttons or the keyboard one can choose the value of time intervals in which the current count rate values are recorded in the instrument memory. Recommended value – 60 min.

Also one can set the time interval, after which the first current count rate value is recorded in the instrument memory (item Time Before First Record, min).

After selecting the necessary functions press the **Apply** button in the main program window to save the settings changes to the instrument, and then confirm your action by clicking “Yes” in the dialog box.



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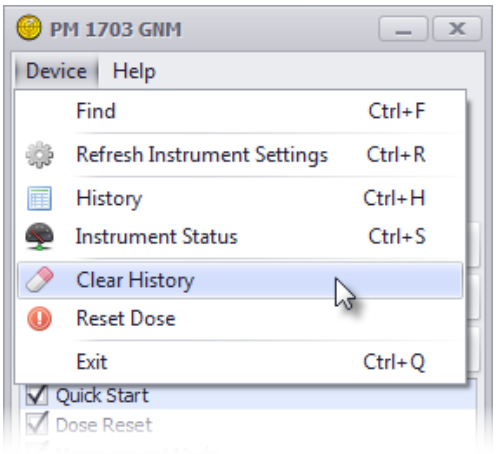
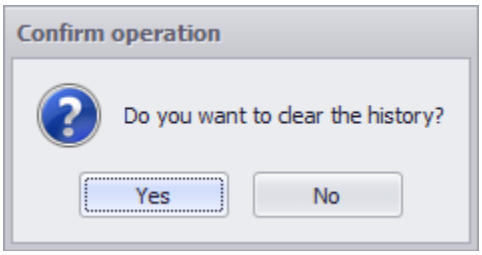
HISTORY RESET



To reset the instrument history, choose the item “Clear History” of the **Device** menu and then confirm the action by clicking “Yes” in the dialog box.



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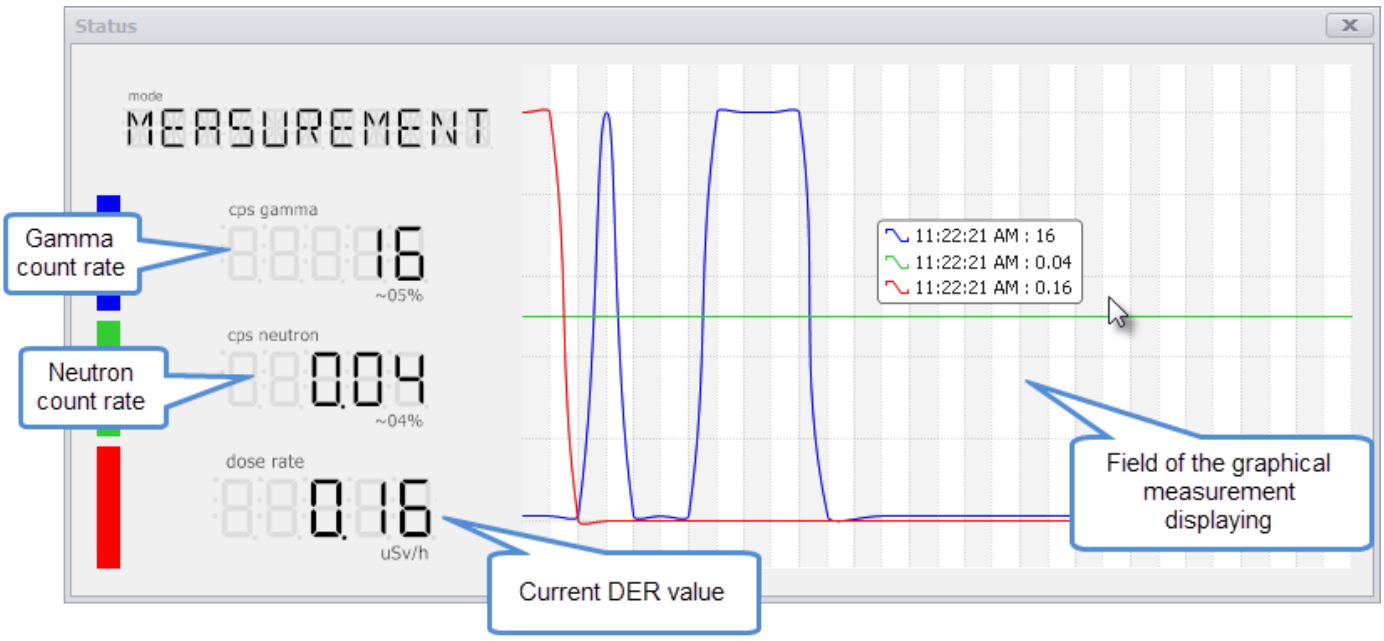
STATUS MODE

In the **Status** mode during the communication with the instrument the information field of the program displays the current measurement data (in digital and graphical form), read from the instrument detector and sent to the software.
To enter the Status mode choose the **Instrument Status** item from the **Device** menu of the main program window. The Status window will appear. The program will enter the **Instrument Status** mode and display in the real-time mode the following measurement data (in digital and graphical form):

- photon radiation DER (μSv/h);
- neutron radiation count rate;
- gamma radiation count rate;



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